DATE IN 04/18/2013	SUSPENSE	ENGINEER PG	LOGGED IN 04/19/2013	TYPE WFX	APP NO. pPRG1310952840

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
X WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

Apache Corp
Northeast Drinkard
Unit 176
30-025-40848

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] X Offset Operators, Leaseholders or Surface Owner

[C] X Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] X For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

RECEIVED OCD
2013 APR 18 P 12:57

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Brian Wood		Consultant	4-15-13
Print or Type Name	Signature	Title	Date

brian@permitswest.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: XXX Secondary Recovery _____ Pressure Maintenance _____ Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes _____ No

II. OPERATOR: APACHE CORPORATION

ADDRESS: 303 VETERANS AIRPARK LANE, SUITE 3000, MIDLAND, TX 79705

CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.) PHONE: 505 466-8120

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? XXX Yes ~~XXX~~ No
If yes, give the Division order number authorizing the project: R-8541

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

NORTHEAST DRINKARD UNIT #176
30-025-40848

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE:  DATE: APRIL 14, 2013

E-MAIL ADDRESS: brian@permitswest.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Side 1

INJECTION WELL DATA SHEET

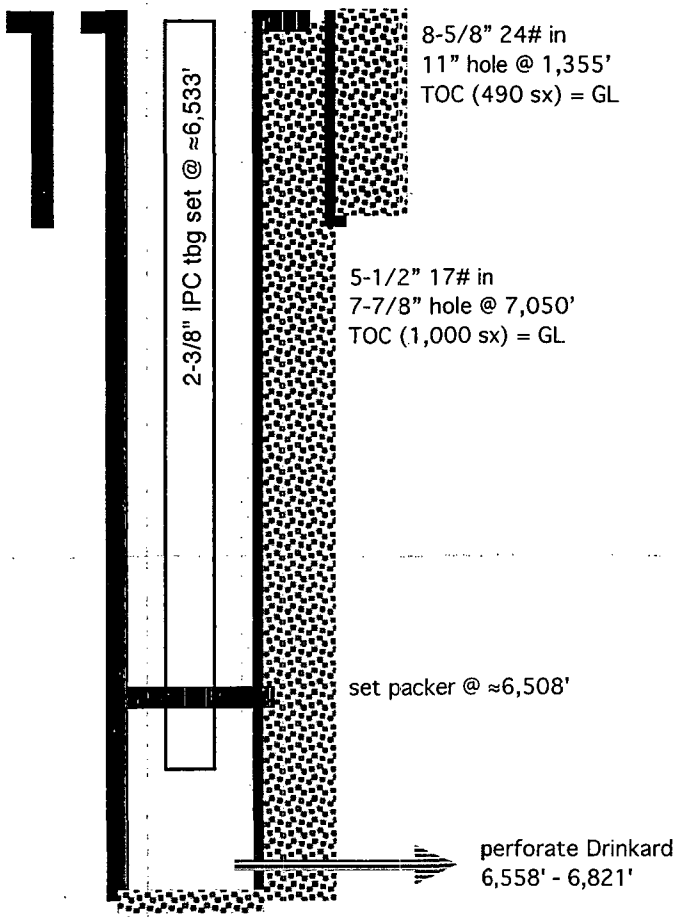
OPERATOR: APACHE CORPORATION

WELL NAME & NUMBER: NORTHEAST DRINKARD UNIT #176

WELL LOCATION:	1980' FNL & 2465' FWL	C (LOT 6)	3	21 S	37 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

"Proposed"



(not to scale)

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 11" Casing Size: 8-5/8"

Cemented with: 490 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: VISUAL

Intermediate Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ ft³

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2"

Cemented with: 1,000 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: VISUAL

Total Depth: 7,050'

Injection Interval

6,558' feet to 6,821'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2-3/8" J-55 4.7# Lining Material: INTERNAL PLASTIC COAT

Type of Packer: LOCK SET INJECTION

Packer Setting Depth: ≈6,508'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? XXX Yes _____ No

   If no, for what purpose was the well originally drilled? _____

2. Name of the Injection Formation: DRINKARD

3. Name of Field or Pool (if applicable): EUNICE; BLI-TU-DR, NORTH (POOL CODE 22900)

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

   NO

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

   OVER: TUBB (6,175'), BLINEBRY (5,650'), GRAYBURG (3,775')

   UNDER: ABO (6,822'), HARE SIMPSON (8,000')

APACHE CORPORATION
NORTHEAST DRINKARD UNIT 176
1980 FNL & 2465 FWL
SEC. 3, T. 21 S., R. 37 E.
LEA COUNTY, NM

30-025-40848

I. Purpose is to drill a water injection well to increase oil recovery. The well will inject (6,558' - 6,821') into the Drinkard, which is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool (aka, Eunice; BLI-TU-DR, North and pool code = 22900). The discovery well was the Gulf Vivian #1 in 1944. The well and zone are part of the Northeast Drinkard Unit (Unit Number 300160, Case Number 9231, Order Number R-8540) that was established in 1987 by Shell. The unit was subsequently operated by Altura, and now, by Apache. This is an active water flood.

II. Operator: Apache Corporation (OGRID #873)
Operator phone number: (432) 818-1167
Operator address: 303 Veterans Airpark Lane, Suite 3000
Midland, TX 79705
Contact for Application: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease: fee (Unit Tract 4, aka, Taylor-Glenn)
Lease Size: 240 acres (see Exhibit A for C-102 and map)
Closest Lease Line: 175'
Lease Area: Lots 5, 6, 9, 10, & 11 of Section 3
Lot 8 of Section 4
T. 21 S., R. 37 E.
Unit Size: 4,938 acres
Closest Unit Line: 1,980'
Unit Area:

<u>T. 21 S., R. 37 E.</u>
Section 2: all
Section 3: all
Section 4: Lots 1, 8, 9, & 16
Section 10: all
Section 11: SW4
Section 14: NW4
Section 15, 22, & 23: all

A. (2) Surface casing (8-5/8" and 24#) will be set at 1,355' in an 11" hole. Cement will be circulated to the surface with 490 sacks.

Production casing (5-1/2" and 17#) will be set at 7,050' (TD) in a 7-7/8" hole. Cement will be circulated to the surface with 1,000 sacks.

Mechanical integrity of the casing will be assured by hydraulically pressure testing to 500 psi for 30 minutes.

A. (3) Tubing specifications are 2-3/8", J-55, 4.7#, and internally plastic coated. Setting depth will be ≈6,533'. (Disposal interval will be 6,558' to 6,821'.)

A. (4) A lock set injection packer will be set at ≈6,508' (≈50' above the highest proposed perforation of 6,558').

B. (1) Injection zone will be the grainstone and packstone member of the Drinkard limestone. The zone is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool. Estimated fracture gradient is ≈0.56 psi per foot.

B. (2) Injection interval will be 6,558' to 6,821'. The well will be a cased hole. See attached well profile for more perforation information.

B. (3) The well has not yet been drilled. It will be completed as a water injection well after approval.

B. (4) The well will be perforated from 6,558' to 6,821' with 2 shots per foot. Shot diameter = 0.40".

B. (5) The next higher oil or gas zone is the Tubb. Its estimated bottom is at 6,557'. Injection will occur in the Drinkard. Drinkard top is at 6,558'. Injection interval in the Drinkard will be 6,558' to 6,821'. The Tubb is unitized with the Blinebry and Drinkard. The Blinebry above the Tubb is productive in Section 3. The Blinebry is part of the

Eunice; Blinebry-Tubb-Drinkard, North Pool (NMOCD pool code number = 22900). Grayburg, above the Blinebry, is productive in Section 3. The Grayburg is part of the Penrose Skelly; Grayburg (NMOCD pool code number = 50350).

The next lower oil or gas zone is the Wantz; Abo (Pool Code = 62700). Its top is at 6,850'. There are six Abo producers in Section 3. Apache operates all six Abo producing wells. The Abo is not part of the Northeast Drinkard Unit. The Hare; Simpson is deeper than the Abo and is productive in Section 3.

IV. This is not a horizontal or vertical expansion of an existing injection project. The case file for the unit approval (R-8540) includes a discussion of the Drinkard water flood. The water flood (R-8541) was approved at the same time in 1987.

There have been ~~13~~ * water flood expansions (WFX-583, WFX-674, WFX-722, WFX-740, WFX-752, WFX-759, WFX-774, WFX-784, WFX-881, WFX-882, WFX-889, WFX-905, WFX-906, & WFX-907) since then. Closest unit boundary is 1,980' north. Eighteen injection wells are within a half-mile radius, all of which are in the unit. The injection wells are in all four cardinal directions (see Exhibit B).

* ~~16~~ WFX (not identified - 576, -579, ~~-583~~, -624, ~~-722~~) + 1 IPI

V. Exhibit B shows all 50 existing wells (3 P & A + 18 water injection wells + 39 producing oil wells) within a half-mile radius, regardless of depth. Exhibit C shows all 492 existing wells (361 oil or gas producing wells + 82 injection or disposal wells + 44 P & A wells + 3 San Andres water supply wells + 2 fresh water supply wells) within a two-mile radius.

Exhibit D shows all leases (only BLM and fee) within a half-mile radius. Details on the leases within a half-mile are:

Area	Lessor	Lease Number	Operator
S2S2 33-20s-38e	BLM	NMLC-031695B	ConocoPhillips
Lots 1-4, 7, 8, 12, 15, & 16 3-21s-37e	BLM	NMNM-002512	Apache
Lots 5, 6, & 9-11 3-21s-37e	fee	Taylor-Glenn	Apache
Lots 13 & 14 3-21s-37e	fee	Livingston	Apache

Area	Lessor	Lease Number	Operator
Lot 1 4-21s-37e	BLM	NMNM-002512	Apache
Lot 8 4-21s-37e	fee	Taylor-Glenn	Apache
Lot 9 4-21s-37e	fee	Livingston	Apache

Exhibit E shows all lessors (BLM, fee, and state) within a two-mile radius. Note that the ranges are offset from the normal pattern (T. 20 S., R. 38 E. is north of T. 21 S., R. 37 E.).

VI. Fifty wells are within a half-mile. Thirty-seven of the wells penetrated the Drinkard. The penetrators include 23 oil wells, 11 water injection wells, and 2 P & A wells. A table abstracting well construction details and histories of the Drinkard penetrators is in Exhibit F. Diagrams illustrating the P & A penetrators are also in Appendix F. The 50 wells and their distances from the 176 are:

OPERATOR	WELL	API # 30-025-	LOCATION	ZONE	STATUS	TD	DISTANCE
Apache	NEDU 108	24831	C-3-21s-37e	Blinebry-Tubb-Drinkard	P & A	6805	486
Apache	Taylor Glenn 14	35353	F-3-21s-37e	Grayburg	OW	4200	494
Apache	NEDU 111	26670	G-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6875	538
Apache	NEDU 107	20315	F-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6000	625
Apache	NEDU 130	34617	F-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6950	743
Apache	NEDU 159	40497	C-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7024	816
Apache	NEDU 163	39914	B-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7025	1011
Apache	NEDU 153	40850	C-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	7000	1138
Apache	NEDU 154	39439	B-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7025	1166

Apache	Taylor Glenn 20	38687	C-3-21s-37e	Grayburg	OW	4530	1202
Apache	NEDU 157	40696	B-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	7025	1221
Apache	NEDU 177	40903	C-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7200	1231
Apache	NEDU 174	40846	C-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	7000	1252
Apache	NEDU 128	34651	E-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6930	1292
Apache	NEDU 206	06522	K-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	8590	1341
Apache	NEDU 106	06410	C-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6000	1411
Apache	NEDU 125	34425	J-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6910	1481
Apache	NEDU 208	06385	J-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6707	1488
Apache	NEDU 129	34938	D-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6980	1489
Apache	NEDU 228	34427	J-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6920	1501
Apache	Tsyllor Glenn 13	35352	E-3-21s-37e	Grayburg	OW	4450	1512
Apache	NEDU 109	06510	B-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6025	1543
Apache	NEDU 263	40849	C-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	7000	1606
Apache	NEDU 138	35609	C-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6990	1659
Apache	NEDU 131	34609	A-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6990	1700
Apache	Taylor Glenn 15	35354	K-3-21s-37e	Grayburg	OW	4450	1718
Apache	NEDU 229	34429	J-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6910	1765
Apache	Hawk B 3 34	38960	D-3-21s-37e	Grayburg	OW	4550	1781
Apache	NEDU 105	25008	E-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6870	1811
Apache	NEDU 175	40516	C-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7050	1872

Apache	NEDU 160	40498	D-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7100	1898
Apache	Taylor Glenn 5	06384	J-3-21s-37e	Wantz; Abo	OW	8361	1941
Apache	NEDU 173	40554	B-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7050	1984
Apache	NEDU 143	35944	C-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6990	2011
Apache	NEDU 110	06495	G-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	5976	2033
Apache	NEDU 172	40847	J-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	7050	2083
Apache	NEDU 113	06496	H-3--21s-37e	Blinebry-Tubb-Drinkard	WIW	6830	2125
Apache	NEDU 190	40904	D-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7200	2126
Apache	NEDU 204	06506	L-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6800	2158
Apache	NEDU 232	34430	14-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6890	2167
Apache	NEDU 104	06386	D-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	5930	2178
Conoco	Hawk B 3 3	06505	P-3-21s-37e	Hare; Simpson	P & A	8010	2214
Apache	NEDU 139	35610	A-3-21s-37e	Blinebry-Tubb-Drinkard	OW	6990	2215
Continental	Hawk B 3 21	06511	L-3-21s-37e	casing parted	P & A	2665	2237
Apache	NEDU 103	09897	D-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6010	2244
Apache	NEDU 158	39440	A-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7020	2276
Apache	NEDU 164	40526	A-3-21s-37e	Blinebry-Tubb-Drinkard	OW	7030	2307
Apache	Taylor Glenn 4	06383	A-3--21s-37e	Hare; Simpson	OW	8119	2466
Apache	NEDU 211	06381	I-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6780	2469
Apache	NEDU 112	06509	A-3-21s-37e	Blinebry-Tubb-Drinkard	WIW	6020	2497
ConocoPhillips	*Warren Unit BT WF 16*	*07876*	*O-33-20s-38e*	*Blinebry-Tubb-Drinkard*	*WIW*	*6050*	*2644*

Drilled to 1370'

VII. 1. Average injection rate will be ≈750 bwpd.
Maximum injection rate will be ≈1,000 bwpd.

2. System will be closed. The well will be tied into the existing unit pipeline system. The system consists of a branched injection system with centrifugal injection pumps.

3. Average injection pressure will be ≈1,000 psi. Maximum injection pressure = 1,311 psi (= 0.2 psi/foot x 6,558' (highest perforation)).

4. Water source will be existing ≈4,000' deep San Andres water supply wells plus produced water from Blinebry, Tubb, and Drinkard zones. The source water and produced water are collected in separate skim tanks. The two water streams (source and produced) are commingled in a storage tank before being piped to the injection wells. Commingling began in the 1970s. A comparison of analyses from the discharge pump and San Andres follows. The complete analyses are in Exhibit G.

	Injection Pump Discharge	San Andres 919-S
Anion/Cation Ratio	1.0	N/A
Barium	0.1 mg/l	0.38 mg/l
Bicarbonate	671.0 mg/l	562.0 mg/l
Calcium	1,099.0 mg/l	608.0 mg/l
Carbon Dioxide	80.0 ppm	80.0 ppm
Chloride	10,086.0 mg/l	6,200.0 mg/l
Hydrogen Sulfide	90.0 ppm	408.0 ppm
Iron	0.3 mg/l	0.0 mg/l
Magnesium	439.0 mg/l	244.0 mg/l
Manganese	N/A	0.01 mg/l
pH	7.5	6.49
Potassium	115.0 mg/l	N/A
Sodium	5,799.5 mg/l	3,909.0 mg/l
Strontium	28.0 mg/	19.0 mg/l
Sulfate	2,465.0 mg/l	1,750.0 mg/l
Total Dissolved Solids	20,702.9 mg/l	13,273.0 mg/l

5. The Drinkard currently produces in the unit. It is the goal of the project to increase production from the Drinkard. According to NMOCD records, at least 2,153 wells have been approved to target the Drinkard in New Mexico.

VIII. The Unit is on the north end of a north-northwest to south-southeast trending anticline. It is part of the Penrose Skelly trend and parallels the west edge of the Central Basin Platform. Dips are ≈1° to ≈2°. The Drinkard is 270' thick and consists of tan to dark gray limestone and dolomite. Core filling and replacement anhydrite are common in the limestone. Nodular anhydrite is common in the dolomite. The reservoir portion of the Drinkard consists of skeletal lime grindstone and lime packstone with some dolomitic packstone. Porosity is ≈11%. Permeability is ≈2.45 millidarcies.

There are currently 158 Drinkard injection wells in the state. Adjacent to the Northeast Drinkard Unit are three other Drinkard water floods (the Apache operated West Blinebry Drinkard and East Blinebry Drinkard Units and the Chevron operated Central Drinkard Unit). The Central Drinkard Unit has been under water flood since the 1960s.

Formation tops are:

Quaternary = 0'
Anhydrite = 1,225'
Rustler = 1,350'
Salt top = 1,450'
Queen = 3,475'
Grayburg = 3,775'
San Andres = 4,050'
Glorieta = 5,275'
Paddock = 5,325'
Blinebry = 5,650'
Tubb = 6,175'
Drinkard = 6,558'
Abo = 6,822'
Total Depth = 7,050'

One fresh water well is within a mile radius. This conclusion is based on a November 15, 2012 field inspection and a review of the State Engineer's records. The closest fresh water well is 4,995' southwest in Section 4 (Exhibit H). That water well, equipped with an electric pump, is 90' deep and probably produces from the Ogallala aquifer. Depth to water is 75'. No existing underground drinking water sources are below the Drinkard within a mile radius.

There will be >6,000' of vertical separation, anhydrite, and the Rustler salt between the bottom of the only likely underground water source (Ogallala) and the top of the Drinkard.

Produced water has been injected or disposed into five zones above the Drinkard within T. 21 S., R. 37 E. and T. 20 S., R. 38 E. The five zones, from top to bottom, are the Grayburg, San Andres, Glorieta, Blinebry, and Tubb.

IX. The well will be stimulated with acid to clean out scale or fill.

X. Spectral gamma ray, spectral density/compensated neutron, dual laterolog/MSFL, and sonic logs are planned.

XI. One fresh water well is within a mile. An analysis from that stock watering well is attached (Exhibit H).

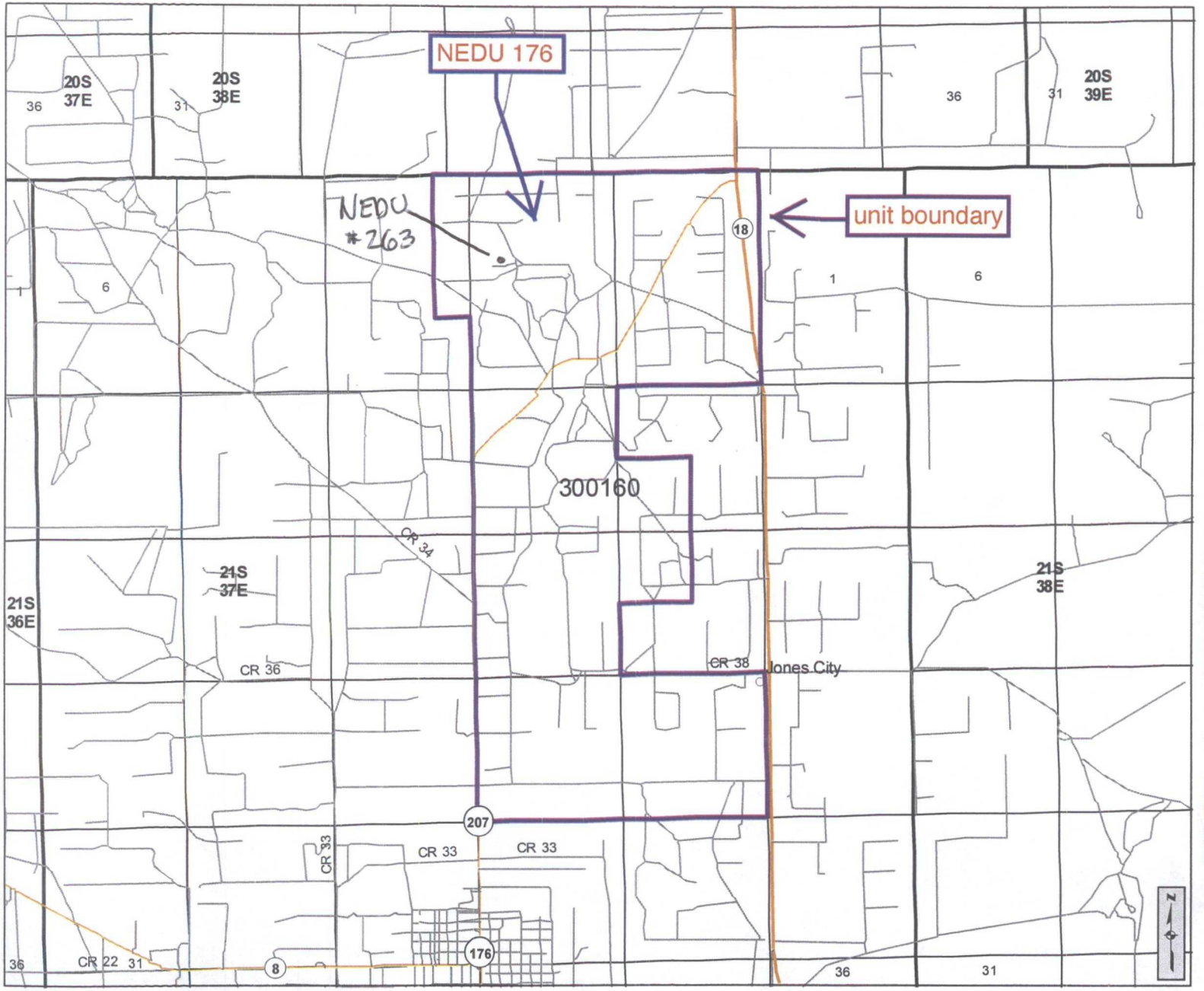
XII. Apache is not aware of any geologic or engineering data that may indicate the Drinkard is in hydrologic connection with any underground sources of water. This was attested to during sworn testimony (page 65, line 14, Order R-8540) presented in 1987. Closest Quaternary fault is over 75 miles west (Exhibit I). At least 256 injection or saltwater disposal wells have been drilled into the Drinkard in the New Mexico portion of the Permian Basin. Previously approved Drinkard water flood expansions in the unit include:

WFX-740 (October 13, 1998)
WFX-752 (July 6, 1999)
WFX-759 (May 8, 2000)
WFX-774 (June 7, 2001)
WFX-784 (October 29, 2002)
WFX-881 (March 14, 2011)
WFX-882 (March 16, 2011)
WFX-896 (March 6, 2012)
WFX-905 (March 25, 2013)
WFX-906 (March 25, 2013)
WFX-907 (March 28, 2013)

XIII. Notice (this application) has been sent (Exhibit J) to the surface owner (Elizabeth Gervis Taylor, et al) and all leasehold Drinkard operators (only Apache and ConocoPhillips) within a half-mile.

A legal ad (see Exhibit K) was published on April 9, 2013.

A



Point Locations
- County Seat
- SLO District Offices
- City, Town or Village
- Volcanic Vents
- Highway Mileposts

NMOCD Oil and Gas Wells
- Oil
- Gas
- Injection
- Water
- Carbon Dioxide
- DA or PA
- Miscellaneous
- Salt Water Disposal

Federal Minerals
- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

State Trust Lands
- Surface Estate
- Subsurface Estate
- Both Estates

NMSLO Leasing
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- Not Available for Oil and Gas Leasing
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Other Boundaries
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- County Boundaries
- Oil and Gas Unit Boundary
- Participating Areas in Units
- Geologic Regions
- Potash Enclave (NMOCD R-111-P)

For detailed legend of the Geologic Map of New Mexico, please see http://geoinfo.nmt.edu/

New Mexico State Land Office

Oil, Gas, and Minerals

0 0.2 0.4 0.8 1.2 1.6 Miles

Universal Transverse Mercator Projection, Zone 13
1983 North American Datum

EXHIBIT A

Land Office Geographic Information Center
logic@slo.state.nm.us

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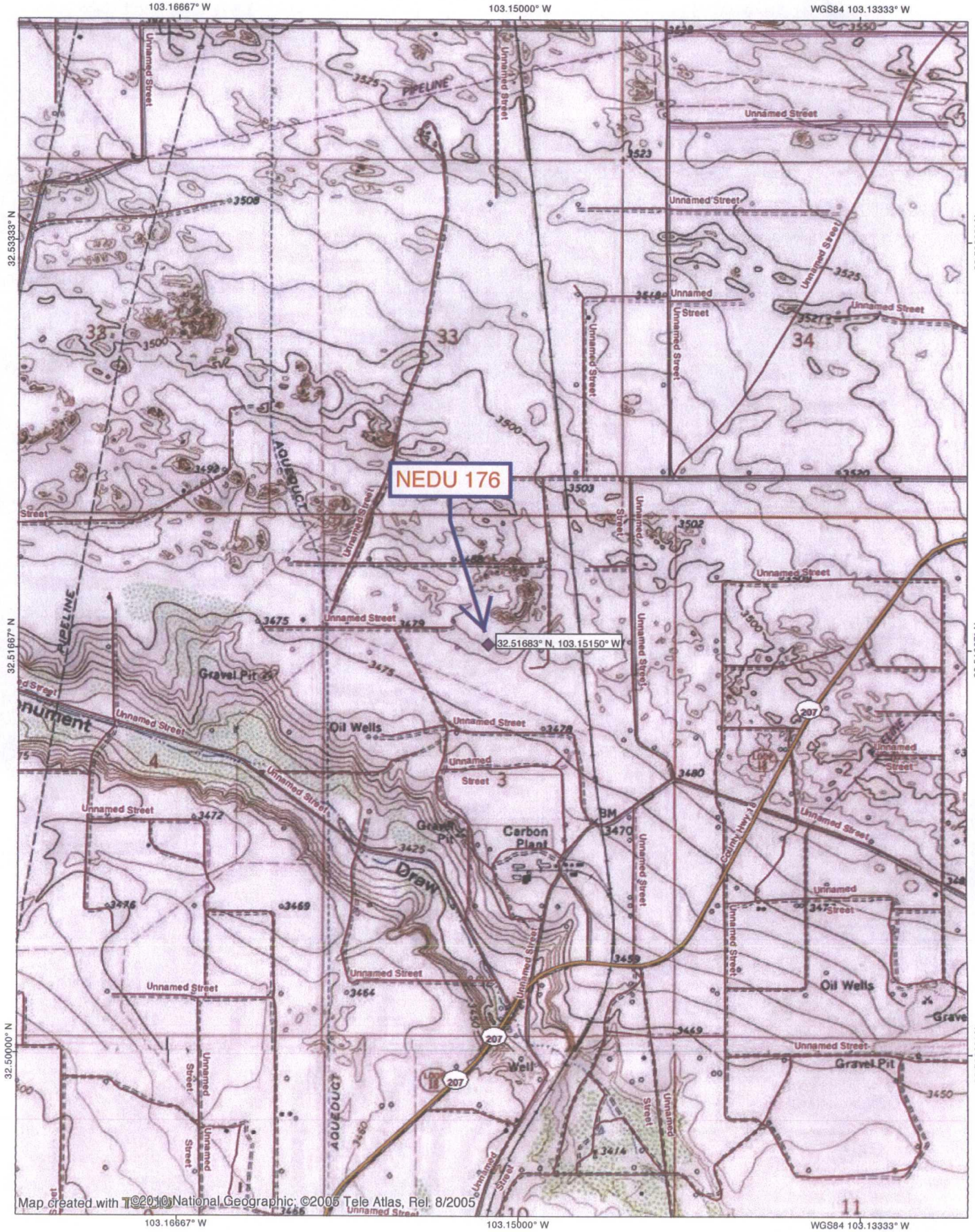
TOPO! map printed on 12/13/12 from "Untitled.tpo"



NATIONAL GEOGRAPHIC

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 miles
0.0 0.5 1.0 km

EXHIBIT A

TN ↑ MN
7°
12/13/12

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	NORTHEAST DRINKARD UNIT	176W
OGRID No.	**Operator Name**	**Elevation**
	APACHE CORPORATION	3487'

Surface Location

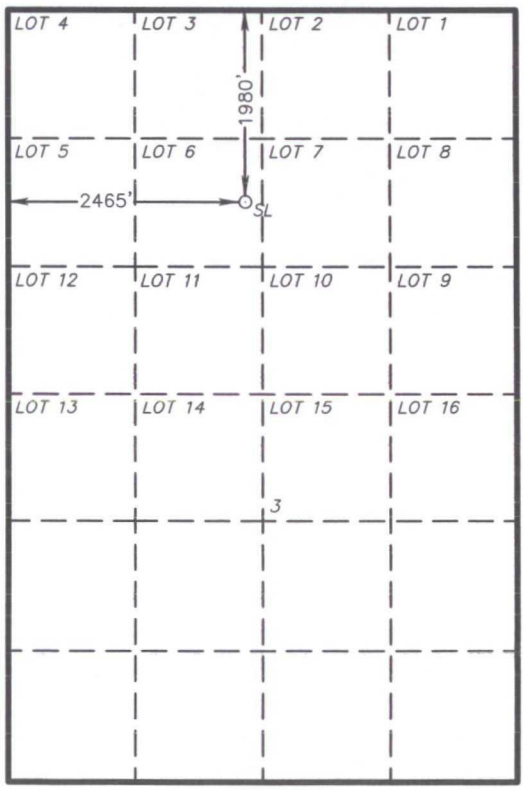
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 6	3	21 S	37 E		1980	NORTH	2465	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



1" = 2000'

SURFACE LOCATION
Lat - N 32°31'00.59"
Long - W 103°09'05.37"
NMSPCE- N 553773.118
E 905634.968
(NAD-83)
Lat - N 32°31'00.16"
Long - W 103°09'03.67"
NMSPCE- N 553713.196
E 864451.307
(NAD-27)

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

Printed Name

Email Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

SEPTEMBER 25, 2012
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

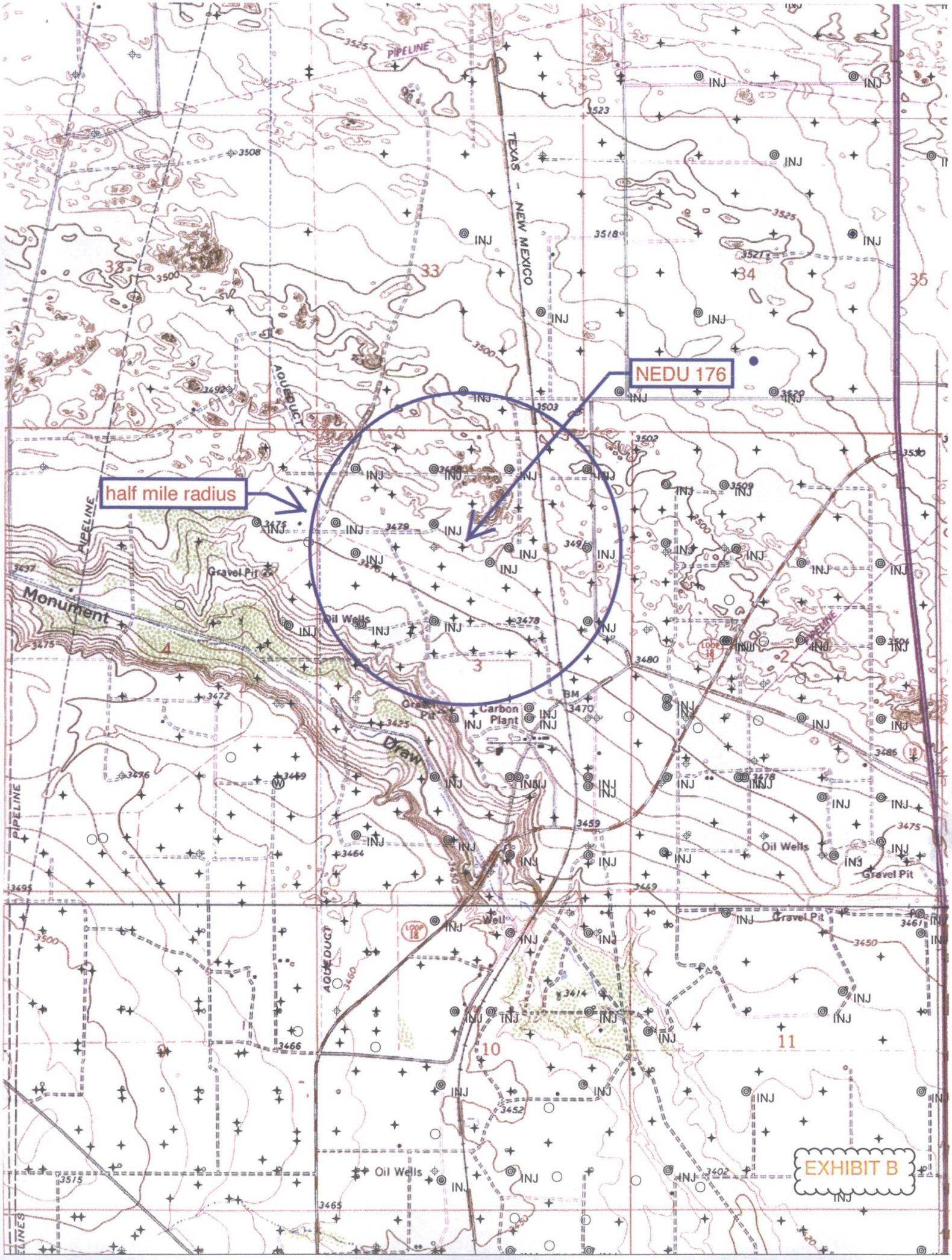
NEW MEXICO 27323

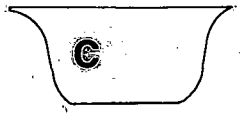
Certificate No. Gary L. Jones 7977

BASIN SURVEYS 27323

EXHIBIT A

B


NEDU 176
half mile radius
EXHIBIT B
TEXAS - NEW MEXICO
PIPELINE
AQUEDUCT
Monument
Draw
Gravel Pit
Oil Wells
Carbon Plant
Well
INJ
33
34
35
4
3
2
10
11



Northeast Drinkard Unit 176

two mile radius

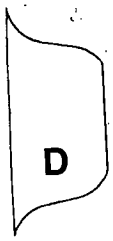
EXHIBIT C

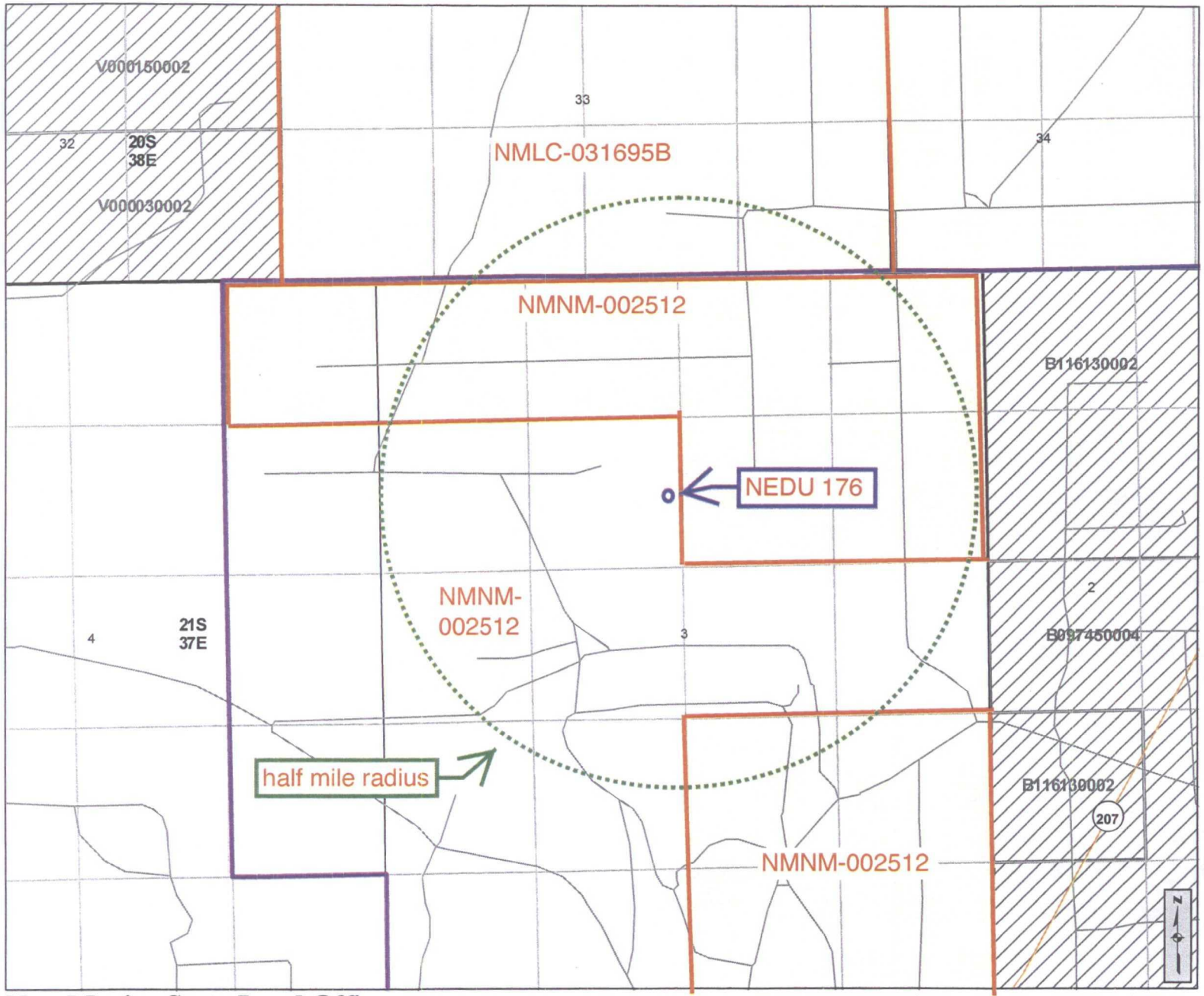
SCALE 1:29629

0 1 MILES

0 1000 2000 YARDS

0 1 2 KILOMETI


D



Point Locations
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- SLO District Offices
- City, Town or Village
- Volcanic Vents
- Highway Mileposts

NMOCD Oil and Gas Wells
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- Gas
- Injection
- Water
- Carbon Dioxide
- DA or PA
- Miscellaneous
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- Surface Estate
- Subsurface Estate
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NMSLO Leasing
- Option Agreement
- Commercial Lease
- Minerals Lease
- Oil and Gas Lease
- Agricultural Lease
- Not Available for Oil and Gas Leasing
- Restriction Influences Oil and Gas Leasing

Other Boundaries
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- State Boundary
- County Boundaries
- Oil and Gas Unit Boundary
- Participating Areas in Units
- Geologic Regions
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New Mexico State Land Office

Oil, Gas, and Minerals

0 0.05 0.1 0.2 0.3 0.4 Miles

Universal Transverse Mercator Projection, Zone 13
1983 North American Datum

EXHIBIT D

Land Office Geographic Information Center
logic@slo.state.nm.us

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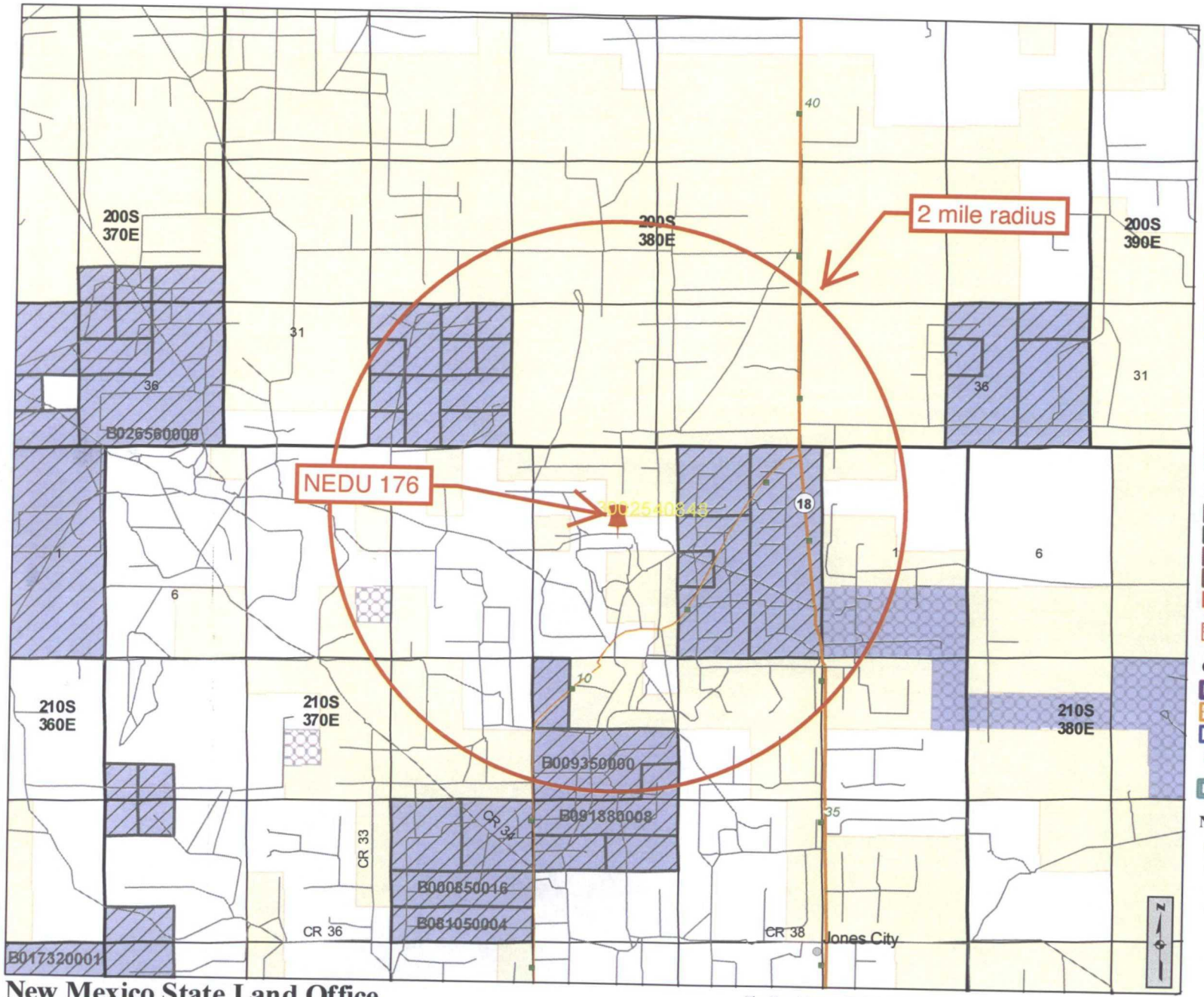
E



Cartographic Features
- County Boundaries
- County Seats
- City, Town or Village
- SLO District Offices
- SLO District Boundary
- Hwy Mileposts
- Interstate
- US Hwy
- NM Hwy
- Local Road
- Continental Divide

Federal Minerals Ownership
- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

State Trust Lands
- Surface Estate
- Subsurface Estate
- Surface and Subsuface Estate

State Leases
- Oil and Gas Leases
- Agricultural Leases
- Commercial Leases
- Minerals Leases
- Not Available for Oil and Gas Leasing
- Oil and Gas Leasing Influenced by Restriction

Oil and Gas Related Features
- Oil and Gas Unit Boundary
- Participating Areas in Units
- Geologic Regions
- Volcanic Vents
- NMOCD Order R-111-P Potash Enclave Outline

NMOCD Oil and Gas Wells
- CO^2
- Gas
- Injection
- Miscellaneous
- Oil
- Salt Water Disposal
- Water
- DA or PA

New Mexico State Land Office
Oil, Gas and Minerals

0 0.2 0.4 0.8 1.2 1.6 Miles

Universal Transverse Mercator Projection, Zone 13
1983 North American Datum

EXHIBIT E

Land Office Geographic Information Center
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www.nmstatelands.org


F

SORTED BY DISTANCE FROM #176

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED
NEDU 108	10/19/74	6805	Blinebry-Drinkard-Tubb	P & A 2/20/09	12.25	8.625	1361	600 sx	GL	circulated
30-025-24831					7.785	5.5	6805	1025 sx	2328	calculated
C-3-21s-37e										
NEDU 111	4/18/80	6875	Blinebry-Drinkard-Tubb	WIW	12.25	8.625	1395	674 sx	GL	circulated 75 sx to surface
30-025-26670					7.785	5.5	6875	2782 sx	GL	circulated 170 sx to surface
G-3-21s-37e										
NEDU 130	6/26/99	6950	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1365	460 sx	GL	circulated 27 sx to pit
30-025-34617					7.785	5.5	6950	1400 sx	GL	circulated 220 sx to pit
F-3-21s-37e										
NEDU 159	6/23/12	7024	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1327	675 sx	GL	circulated 109 sx to surface
30-025-40497					7.785	5.5	7024	1290 sx	GL	circulated 100 sx to surface
C-3-21s-37e										
NEDU 163	11/30/10	7025	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1422	720 sx	GL	circulated 180 sx to surface
30-025-39914					7.785	5.5	7025	1275 sx	GL	circulated 106 sx to surface
B-3-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 153	no spud yet	plan 7000	Blinebry-Drinkard-Tubb	WIW	11	8.625	1336	490 sx	GL	circulate
30-025-40850					7.785	5.5	7000	1000 sx	GL	circulate
C-3-21s-37e										
NEDU 154	10/25/10	7025	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1409	720 sx	GL	circulated 154 sx to surface
30-025-39439					7.875	5.5	7025	1340 sx	GL	circulated 152 sx to surface
B-3-21s-37e										
NEDU 157	8/7/12	7036	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1445	730 sx	GL	circulated 157 sx to surface
30-025-40696					7.785	5.5	7036	1260 sx	GL	circulated 140 sx to surface
B-3-21s-37e										
NEDU 177	2/14/13	plan 7200	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1390	700 sx	GL	circulate to surface
30-025-40903					7.875	5.5	7200	950 sx	GL	circulate to surface
C-3-21s-37e										
NEDU 174	no spud yet	plan 7000	Blinebry-Drinkard-Tubb	WIW	11	8.625	1338	490 sx	GL	circulate to surface
30-025-40846					7.875	5.5	7000	1000 sx	GL	circulate to surfaces
C-3-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 128	7/25/99	6930	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1336	460 sx	GL	circulated 100 sx to pit
30-025-34651					7.785	5.5	6930	1000 sx	GL	circulated 129 sx to pit
E-3-21s-37e										
NEDU 206	9/29/47	8590	Blinebry-Drinkard-Tubb	WIW	17	13.375	301	250	GL	circulated
30-025-06522					11	8.625	3879	4300	GL	circulated
K-3-21s-37e					7.785	5.5	8060	675	2915	temperature survey
NEDU 125	11/14/98	6910	Blinebry-Drinkard-Tubb	oil	11	8.625	1300	410 sx	GL	circulated 120 sx to pit
30-025-34425					7.785	5.5	6910	1375 sx	GL	circulated 86 sx to pit
J-3-21s-37e										
NEDU 208	7/27/52	6707	Blinebry-Drinkard-Tubb	oil	17	13.375	225	250 sx	no report	
30-025-06385					11	8.625	3147	2000 sx	GL	circulated out 280 sx
J-3-21s-37e					7.785	5.5	6600	600 sx	GL	circulated out 25 sx
NEDU 129	7/28/00	6980	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1321	460 sx	GL	circulated 87 sx to pit
30-025-34938					7.785	5.5	6980	1275 sx	GL	circulated 110 sx to pit
D-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 228	10/18/98	6920	Blinebry-Drinkard-Tubb	oil	11	8.625	1311	410 sx	GL	circulated 98 sx to pit
30-025-34427					7.875	5.5	6920	1200 sx	180	CBL
J-3-21s-37e										
NEDU 263	no spud yet	plan 7000	Blinebry-Drinkard-Tubb	WIW	11	8.625	1330	490 sx	GL	circulate
30-025-40849					7.875	5.5	7000	1000 sx	GL	circulate
C-3-21s-37e										
NEDU 138	7/18/01	6990	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1400	850 cu ft	GL	circulated 47 sx to pit
30-025-35609					7.785	5.5	6990	3159 cu ft	GL	circulated 85 sx to pit
C-3-21s-37e										
NEDU 131	7/10/99	6990	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1365	460 sx	GL	circulated 109 sx to pit
30-025-34609					7.875	5.5	6990	1525 sx	GL	circulated 125 sx to pit
A-3-21s-37e										
NEDU 229	11/1/98	6910	Blinebry-Drinkard-Tubb	oil	11	8.625	1309	410 sx	GL	circulated 126 sx to pit
30-025-34429					7.875	5.5	6910	1325 sx	GL	circulated 170 sx to pit
J-3-21s-37e										
NEDU 105	7/1/75	7100	Blinebry-Drinkard-Tubb	WIW	11	8.625	1380	400 sx	GL	circulated
30-025-25008					7.785	5.5	6870	985 sx	410	temperature survey
E-3-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 175	8/24/12	7050	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1371	700 sx	GL	circulated 189 sx to surface
30-025-40516					7.785	5.5	7050	1150 sx	GL	circulated 72 sx to surface
C-3-21s-37e										
NEDU 160	7/1/12	7100	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1395	685 sx	GL	circulated 51 sx to surface
30-025-40498					7.785	5.5	7100	1300 sx	GL	circulated 14 bbl to surface
D-3-21s-37e										
Taylor Glenn 5	5/14/52	8361	Wantz Abo	oil	17.25	13.375	225	250 sx	GL	circulated out 90 sx
30-025-06384					11	8.625	3147	2200 sx	GL	circulated out 400 sx
J-3-21s-37e					7.875	5.5	8355	850 sx	2943	calculated
NEDU 173	8/16/12	7050	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1352	700 sx	GL	circulated 173 sx to surface
30-025-40554					7.875	5.5	7050	1220 sx	GL	circulated 72 bbls to surface
B-3-21s-37e										
NEDU 143	8/8/02	6990	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1259	600 sx	GL	circulated 114 sx to surface
30-025-35944					7.785	5.5	6990	1450 sx	GL	circulated 119 sx to surface
C-3-21s-37e										
NEDU 172	no spud yet	plan 7050	Blinebry-Drinkard-Tubb	WIW	11	8.625	1372	500 sx	GL	circulate
30-025-40847					7.875	5.5	7050	1000 sx	GL	circulate
B-3-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 113	4/15/58	6830	Blinebry-Drinkard-Tubb	WIW	17.5	13.375	211	250 sx	GL	circulated to surface
30-025-06496					12.25	9.625	3029	1210 sx	820	temperature
H-3-21s-37e					8.75	7	6829	770 sx	3038	temperature
NEDU 190	2/22/13	plan 7200	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1375	700 sx	GL	circulate
30-025-40904					7.785	5.5	7200	950 sx	GL	circulate
D-3-21s-37e										
NEDU 204	8/11/62	6785	Blinebry-Drinkard-Tubb	WIW	10.75	9.625	1310	625 sx	GL	circulated
30-025-06506					8.75	7	6800	650 sx	2200	temperature survey
L-3-21s-37e										
NEDU 232	10/6/98	6890	Blinebry-Drinkard-Tubb	oil	11	8.625	1302	410 sx	GL	circulated 110 sx to pit
30-025-34430					7.875	5.5	6890	1225 sx	GL	circulated 129 sx to pit
14 -3-21s-37e										
Hawk B 3 #3	2/8/56	8010	Hare-Simpson	P & A 5/8/90	no report	10.75	265	250 sx	GL	circulated
30-025-06505					no report	7.625	3149	1045 sx	585	temperature survey
P-3-21s-37e					no report	5.5	8009	573 sx	3500	calculated
NEDU 139	8/2/01	6990	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1400	460 sx	GL	circulated
30-025-35610					7.785	5.5	6990	1375 sx	GL	circulated
A-3-21s-37e										

SORTED BY DISTANCE FROM #176

NEDU 158	11/7/10	7020	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1419	720 sx	GL	circulated 170 sx to surface
30-025-39440					7.875	5.5	7020	1250 sx	GL	circulated 124 sx to surface
A-3-21s-37e										
NEDU 164	7/31/16	7030	Blinebry-Drinkard-Tubb	oil	12.25	8.625	1445	780 sx	GL	circulated 170 sx to surface
30-025-40526					7.875	5.5	7030	1235 sx	GL	circulated 306 sx to surface
A-3-21s-37e										
Taylor Glenn 4	3/10/52	8119	Hare Simpson	oil	17.25	13.375	200	250 sx	GL	circulated out 50 sx
30-025-06383					11	8.625	3147	2200 sx	GL	circulated out 300 sx
A-3-21s-37e					7.875	5.5	8115	875 sx	GL	circulated out 75 sx
NEDU 211	1/4/50;	6780	Blinebry-Drinkard-Tubb	WIW	17.25	13.375	222	300 sx	GL	circulated 260 sx
30-025-06381					11	8.625	2920	2200 sx	GL	circulated
I-3-21s-37e					7.875	5.5	6665	600 sx	6620	on misc. report 2/9/1950

LEASE NAME	North East Drinkard Unit
WELL #	108
API #	30-025-24831
COUNTY	Lea, NM

CURRENT WELLBORE SKETCH

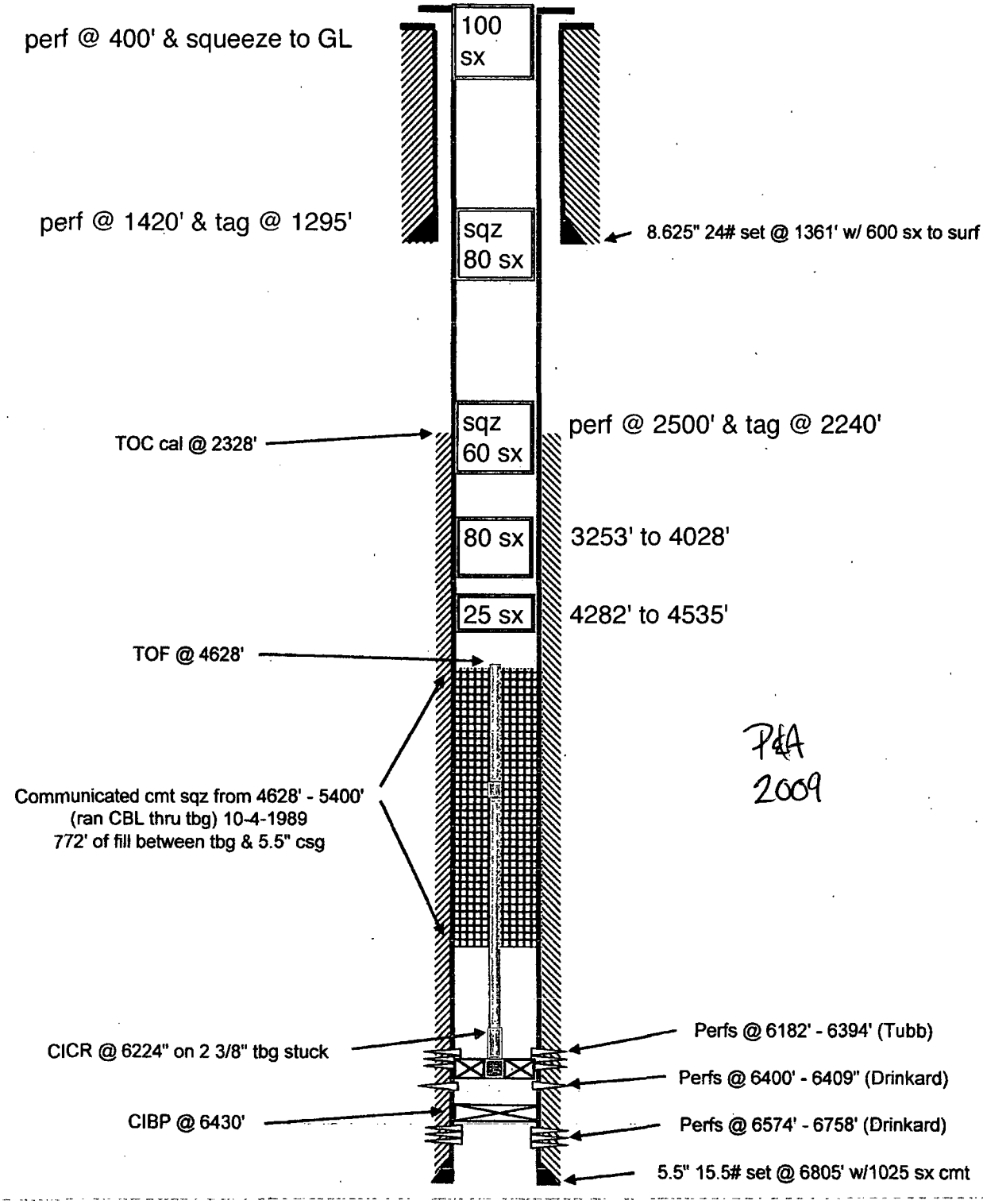


EXHIBIT F

Well: Hawk B-3 # 3

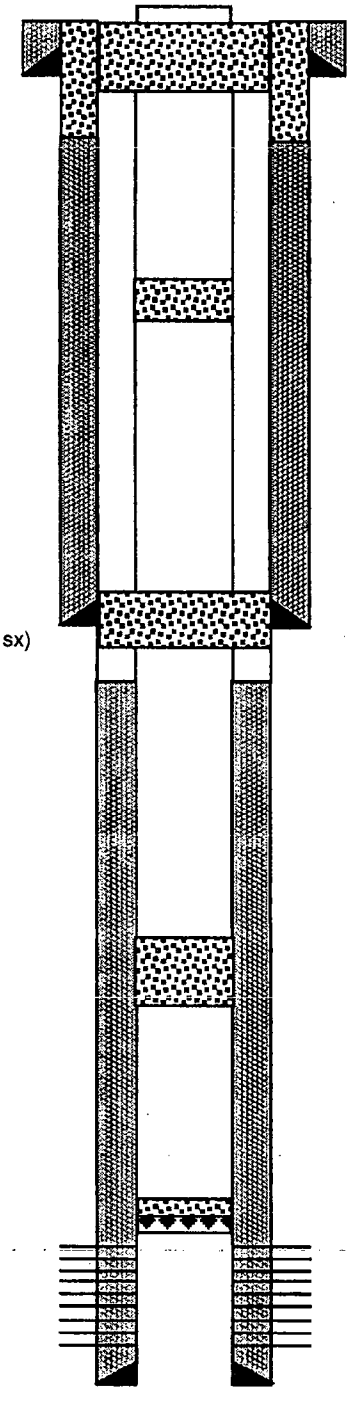
Field: Hare

Current Status: P&A (5/90)

Location: 2970' FSL & 510' FEL
Unit P, Sec. 3, T21S, R37E
Lea County, New Mexico

API #: 30-025-06505

Elevation: 3470' (GR)



Install P&A Marker
Perf 5-1/2" casing @ 315'
Cmt sqz inside & outside casing circulating to surface (60 sx)

Cmt 10-3/4" x 7-5/8" annulus to surface (55 sx)

Cmt Plug 1391'-1500' (11 sx)

Perf 5-1/2" casing @ 3200'
Cmt sqz inside & outside casing (25 sx)

Cmt Plug 5630'-5831' (25 sx)

CIBP @ 7450'
Cmt 7346'-7450' (15 sx)

Hare Perfs:
7499-7967

13-3/4" Hole
10-3/4" 33# H-40 CSA 265'
Cement w / 250 sx
Circulated to Surface

9-7/8" Hole
7-5/8" 26# H-40 CSA 3149'
Cement w / 1045 sx
TOC @ 585' (Temp Survey)

7-7/8" Hole
5-1/2" 15.5/17# J-55 CSA 8009'
Cement w / 573 sx
TOC @ 3500' (Temp Survey)

TD @ 8010'

EXHIBIT F


G

Baker Petrolite

from WFX-784

South Permian Basin Region
10520 West I-20 East
Odessa, TX 79765
(915) 498-9191
Lab Team Leader - Sheila Hernandez
(915) 495-7240

Water Analysis Report by Baker Petrolite

Company:	APACHE CORPORATION	Sales RDT:	33102
Region:	PERMIAN BASIN	Account Manager:	MIKE EDWARDS (505) 910-9517
Area:	EUNICE, NM	Sample #:	223099
Lease/Platform:	NORTHEAST DRINKARD UNIT	Analysis ID #:	28971
Entity (or well #):	WATER INJECTION STATION	Analysis Cost	$40.00
Formation:	UNKNOWN		
Sample Point:	INJECTION PUMP DISCHARGE		

Summary	
Sampling Date:	10/3/02
Analysis Date:	10/4/02
Analyst:	SHEILA HERNANDE
TDS (mg/l or g/m3):	20702.9
Density (g/cm3, tonne/m3):	1.015
Anion/Cation Ratio:	1.000000
Carbon Dioxide:	60 PPM
Oxygen:	
Comments:	

Analysis of Sample 223099 @ 75 °F

Anions	mg/l	meq/l
Chloride:	10086.0	284.49
Bicarbonate:	671.0	11.
Carbonate:	0.0	0.
Sulfate	2465.0	51.32
Phosphate:		
Borate:		
Silicate:		
Hydrogen Sulfide:		90 PPM
pH at time of sampling:		7.5
pH at time of analysis:		
pH used in Calculation:		7.5

Cations	mg/l	meq/l
Sodium:	5799.5	252.26
Magnesium:	439.0	36.11
Calcium:	1099.0	54.84
Strontium:	28.0	0.64
Barium:	0.1	0.
Iron:	0.3	0.01
Potassium:	115.0	2.94
Aluminum:		
Chromium:		
Copper:		
Lead:		
Manganese:		
Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	1.18	75.54	-0.08	0.00	-0.14	0.00	0.07	2.75	0.75	0.00	0.21
100	0	1.25	85.15	-0.08	0.00	-0.09	0.00	0.07	3.09	0.60	0.00	0.3
120	0	1.33	95.11	-0.10	0.00	-0.02	0.00	0.09	3.78	0.47	0.00	0.42
140	0	1.41	105.41	-0.10	0.00	0.08	128.07	0.11	4.46	0.36	0.00	0.56

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

EXHIBIT G

UNICHEM

A Division of BJ Services Company

Lab Test No. 23748

Apache

Sample Date: 3/10/99

Water Analysis

Listed below please find water analysis report from: NEDU #919-S

WFX-774 application indicates this is San Andres source water

Specific Gravity:		1.009
Total Dissolved Solids:		13273
pH:		6.49
Conductivity (µmhos):		
Ionic Strength:		0.265

Cations:		mg/l
Calcium	(Ca++):	608
Magnesium	(Mg++):	244
Sodium	(Na+):	3909
Iron	(Fe++):	0.00
Dissolved Iron	(Fe++):	
Barium	(Ba++):	0.38
Strontium	(Sr):	19
Manganese	(Mn++):	0.01
Resistivity:		

Anions:		
Bicarbonate	(HCO3-):	562
Carbonate	(CO3--):	
Hydroxide	(OH-):	0
Sulfate	(SO4--):	1750
Chloride	(Cl-):	6200

Gases:		ppm		
Carbon Dioxide	(CO2):	80.00	Oxygen	(O2):
Hydrogen Sulfide	(H2S):	408.00		

Scale Index (positive value indicates scale tendency) a blank indicates some tests were not run

Temperature		CaCO3 SI	CaSO4 SI
86F	30.0C	-0.14	-17.28
104F	40.0C	0.09	-17.28
122F	50.0C	0.35	-17.28
140F	60.0C	0.57	-16.80
158F	70.0C	0.87	-15.02
176F	80.0C	1.20	-15.51

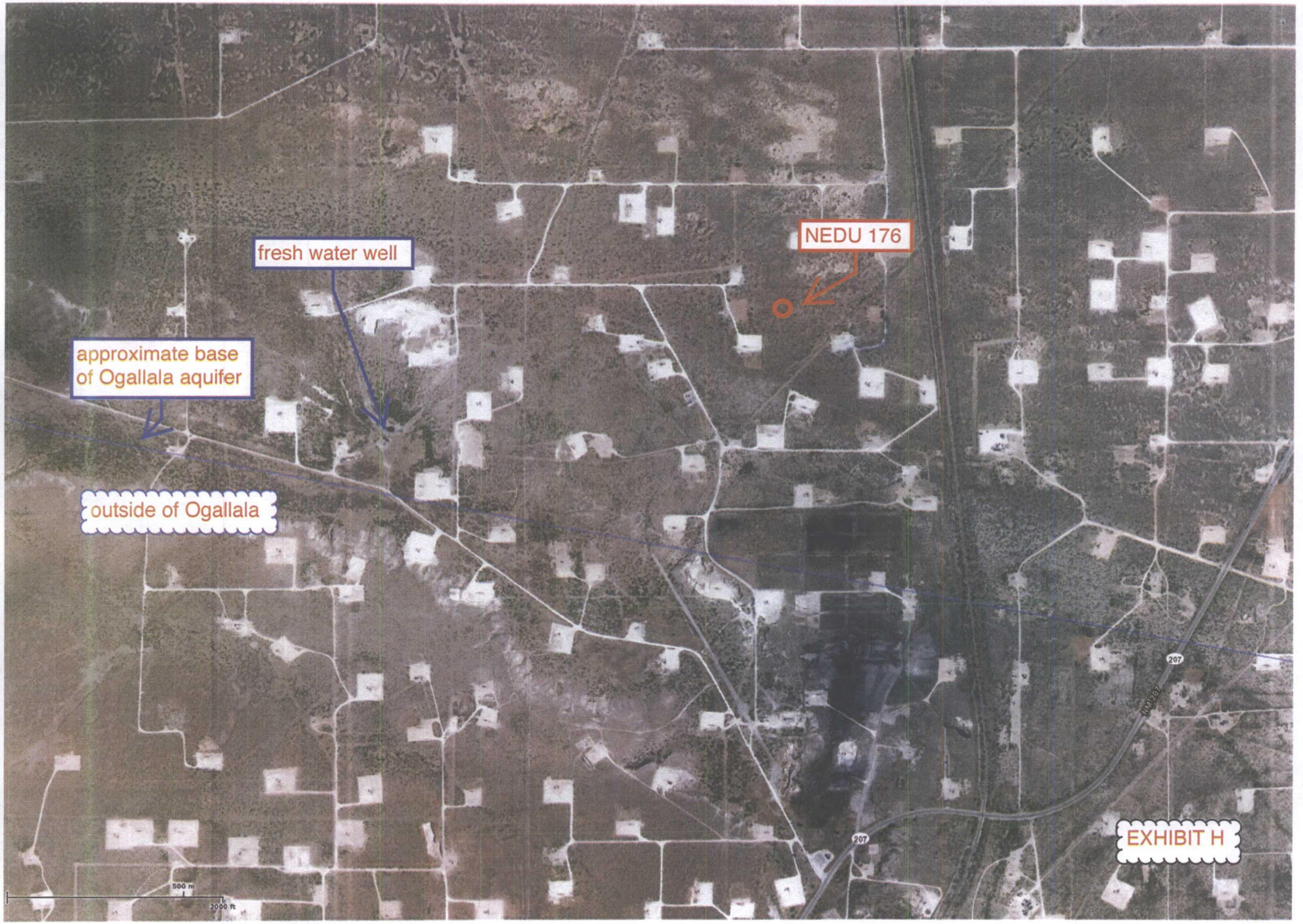
Comments:

cc: Jerry White
Jay Brown

P.O. Box 61427 • Midland, TX 79711 • 4312 S. County Rd. 1298, Midland, TX 79765
Office: (915) 563-0241 • Fax: (915) 563 0243

EXHIBIT G


H


NEDU 176
fresh water well
approximate base
of Ogallala aquifer
outside of Ogallala
207
207
500 m
2000 ft
EXHIBIT H

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00552			LE	2	4	04	21S	37E	672700	3598022*		1523	90	75	15
CP 00553			LE	2	4	04	21S	37E	672700	3598022*		1523	90	75	15

Average Depth to Water: **75 feet**

Minimum Depth: **75 feet**

Maximum Depth: **75 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 673627 **Northing (Y):** 3599231 **Radius:** 2000

EXHIBIT H

***UTM location was derived from PLSS - see Help**

Analytical Report
Lab Order **1211780**
Date Reported: **11/28/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: Apache-NEDU SWD
Lab ID: 1211780-001 **Matrix:** AQUEOUS

Client Sample ID: A NEDU SWD Wind#1
Collection Date: 11/15/2012 6:02:00 PM
Received Date: 11/19/2012 1:36:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 1664A						Analyst: **JAL**
N-Hexane Extractable Material	6.9	5.0		mg/L	1	11/26/2012

EXHIBIT H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: Apache-NEDU SWD
Lab ID: 1211780-002 **Matrix:** AQUEOUS

Client Sample ID: A NEDU SWD Wind #2
Collection Date: 11/15/2012 6:02:00 PM
Received Date: 11/19/2012 1:36:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JML**
Total Dissolved Solids	1520	20.0		mg/L	1	11/21/2012 1:57:00 PM

EXHIBIT H

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	P	Sample pH greater than 2	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211780**

28-Nov-12

Client: Permits West

Project: Apache-NEDU SWD

Sample ID	MB-4953	SampType:	MBLK		TestCode:	EPA Method 1664A				
Client ID:	PBW	Batch ID:	4953		RunNo:	7100				
Prep Date:	11/26/2012	Analysis Date:	11/26/2012		SeqNo:	205931	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	5.0								

Sample ID	LCS-4953	SampType:	LCS		TestCode:	EPA Method 1664A				
Client ID:	LCSW	Batch ID:	4953		RunNo:	7100				
Prep Date:	11/26/2012	Analysis Date:	11/26/2012		SeqNo:	205932	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	34	5.0	40.00	0	84.8	78	114			

Sample ID	MB-4953	SampType:	MBLK		TestCode:	EPA Method 1664A				
Client ID:	PBW	Batch ID:	4953		RunNo:	7101				
Prep Date:	11/26/2012	Analysis Date:	11/27/2012		SeqNo:	205949	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silica Gel Treated N-Hexane Extrac	ND	5.0								

Sample ID	LCS-4953	SampType:	LCS		TestCode:	EPA Method 1664A				
Client ID:	LCSW	Batch ID:	4953		RunNo:	7101				
Prep Date:	11/26/2012	Analysis Date:	11/27/2012		SeqNo:	205950	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silica Gel Treated N-Hexane Extrac	13	5.0	20.00	0	66.5	64	132			

EXHIBIT H

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211780**

28-Nov-12

Client: Permits West

Project: Apache-NEDU SWD

Sample ID	MB-4917	SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW	Batch ID:	4917		RunNo:	7074				
Prep Date:	11/20/2012	Analysis Date:	11/21/2012		SeqNo:	204919	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-4917	SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW	Batch ID:	4917		RunNo:	7074				
Prep Date:	11/20/2012	Analysis Date:	11/21/2012		SeqNo:	204920	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	996	20.0	1000	0	99.6	80	120			

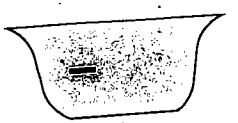
Sample ID	1211677-002AMS	SampType:	MS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	BatchQC	Batch ID:	4917		RunNo:	7074				
Prep Date:	11/20/2012	Analysis Date:	11/21/2012		SeqNo:	204932	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1050	20.0	1000	36.00	101	80	120			

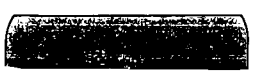
Sample ID	1211677-002AMSD	SampType:	MSD		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	BatchQC	Batch ID:	4917		RunNo:	7074				
Prep Date:	11/20/2012	Analysis Date:	11/21/2012		SeqNo:	204933	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	36.00	103	80	120	1.42	5	

EXHIBIT H

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits





USGS
science for a changing world

Geologic Hazards Science Center

EHP Quaternary Faults

Search for fault: Guadalupe Select a state or region map: Submit

Submit Clear Selected Features

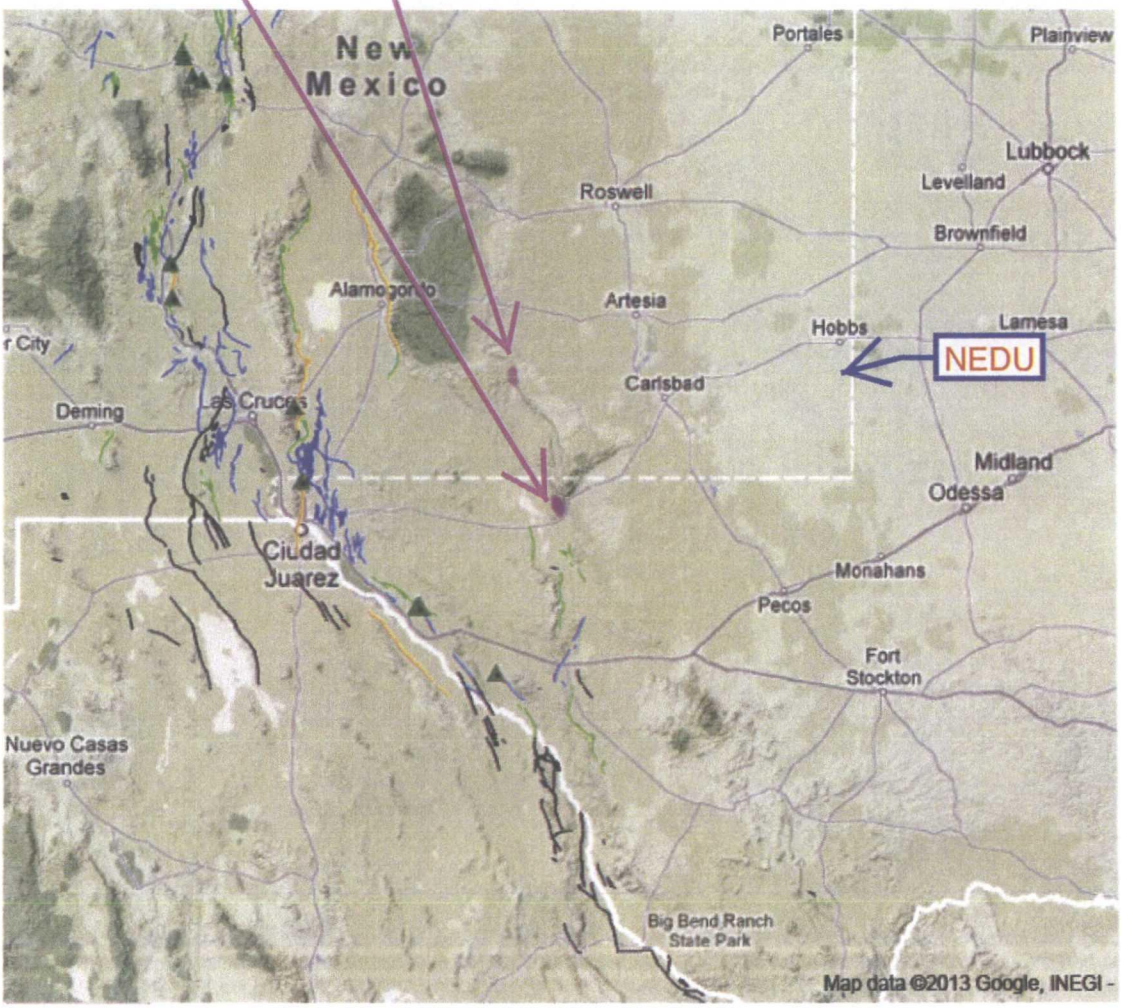
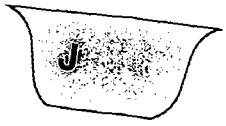


EXHIBIT I



PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87500 (505) 466-8120

April 14, 2013

Tom Scarborough
ConocoPhillips Company
P. O. Box 2197
Houston, TX 77252

Dear Mr. Scarborough:

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit 176 well as a water injection well. As required by NM Oil Conservation Division (NMOCD) Rules, I am notifying you of the following proposed water injection well. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: Northeast Drinkard Unit 176 (private lease) TD = 7,050'
Proposed Injection Zone: Drinkard (from 6,558' to 6,821')
Location: 1980' FNL & 2465' FWL Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
Applicant Name: Apache Corporation (432) 818-1167
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a water injection well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

EXHIBIT J

7010 2780 0002 6818 6934

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Return Receipt Fee (Endorsement Required)	$2.55
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$ $7.37

CUBA NM 87013 0013
03
Postmark Here
APR 15 2013
04/15/2013
USPS

Sent To ConocoPhillips
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87500 (505) 466-8120

April 14, 2013

Elizabeth Gervis Taylor, et al
614 W. Parkside Dr.
Palatine, IL 60067

Dear Ms. Taylor:

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit 176 well as a water injection well. As required by NM Oil Conservation Division (NMOCD) Rules, I am notifying you of the following proposed water injection well. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: Northeast Drinkard Unit 176 (private lease) TD = 7,050'
Proposed Injection Zone: Drinkard (from 6,558' to 6,821')
Location: 1980' FNL & 2465' FWL Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
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Please call me if you have any questions.

Sincerely,

7010 2780 0002 6818 6927

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Postage	$ $1.72
Certified Fee	$3.10
Return Receipt Fee (Endorsement Required)	$2.55
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$ $7.37

CUBA NM 87013 0013
03
Postmark Here
APR 15 2013
04/15/2013
USPS

Sent To Taylor
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

PS Form 3800, August 2006


K

Affidavit of Publication

State of New Mexico,
County of Lea.

I, JUDY HANNA
PUBLISHER
of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period

of 1 issue(s).
Beginning with the issue dated
April 09, 2013
and ending with the issue dated
April 09, 2013

PUBLISHER
Sworn and subscribed to before me
this 9th day of
April, 2013

Notary Public

My commission expires
January 29, 2015
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-15

This newspaper is duly qualified to publish legal notices or advertisments within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL

Legal Notice
April 9, 2013

Apache Corporation is applying to drill the Northeast Drinkard Unit #176 well as a water injection well. The well will be at 1980 FNL & 2465 FWL, Sec. 3, T. 21 S., R. 37 E., Lea County, NM. This is 5 miles north of Eunice, NM. It will inject water into the Drinkard (maximum injection pressure = 1,311 psi) from 6,558' to 6,821'. Injection will be at a maximum rate of 1,000 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting: Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-8120.
#28062

02108485 00112409

BRIAN WOOD
PERMITS WEST
37 VERANO LOOP
SANTA FE, NM 87508

EXHIBIT K

Injection Permit Checklist: Received 04/19/13 First Email Date: — Final Reply Date: — Suspended?: —

Issued Permit: Type: (WFX) / PMX / SWD Number: 910 Permit Date: 05/31/13 Legacy Permits or Orders: R-8451 +16 WFX + 1 IPI

Well No. 176 Well Name(s): Northeast Drinkard Unit (NEDU)

API : 30-0 25-40484 Spud Date: TBD New/Old: New (UIC Cl II Primacy March 7, 1982)

Footages 1980 FNL / 2465 FWL Lot 6 Unit — Sec 3 Tsp 21S Rge 37E County Lea

General Location: One mile north of Eunice Pool: Eunice: Bl-Tu-Dr, N Pool No.: 22900

Operator: Apache Corp OGRID: 873 Contact: Brian Wood/ Agent

COMPLIANCE RULE 5.9: Inactive Wells: 3 TotalWells: 2766 Fincl Assur: Ok Compl. Order? No **IS 5.9 OK?** Yes

Well File Reviewed: ✓ Current Status: Proposal / APD mod & submitted

Planned Rehab Work to Well: New well

Well Diagrams: Proposed ✓ Before Conversion ____ After Conversion ____ Are Elogs in Imaging?: NA

Well Construction Details:	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Stage Tool	Cement (Sx) or Cf	Cement Top and Determination Method
Planned __ or Existing __ Cond	—	0 to —	—	—	—
Planned ✓ or Existing __ Surface	11 / 8 5/8	1355 ~~490~~	NA	490	Cir to Surf
Planned __ or Existing __ Interm	—	—	—	—	—
Planned ✓ or Existing __ LongSt	7 7/8 / 5 1/2	0 to 7050		1,000	Cir to Surf
Planned __ or Existing __ Liner	—	—	—	—	—
Planned ✓ or Existing __ OH / PERF	5 1/2	6558 - 6821	Top of Drinkard		

Injection Formation(s):	Depths (ft)	Formation	Tops?
Above Top of Inject Formation	+1283/PL	Glorieta	5,275
Above Top of Inject Formation	+908/BL	Paddock	5325
Proposed Interval TOP:	(6558)	Blinebry	5650
Proposed Interval BOTTOM:	6821	Drinkard	(6558)
Below Bottom of Inject Formation	+1	Abo	6822
Below Bottom of Inject Formation	—		—

Bl + Tu + Dr

Completion/Ops Details:

Drilled TD 7050 PBTD 6

Open Hole ____ or Perfs ✓

Tubing Size 2 3/8 Inter Coated? ✓

Proposed Packer Depth 6508

Max Packer Depth 6458 (100-ft limit)

Proposed Max. Surface Press 1311

Calc. Injt Press 1312 (0.2 psi per ft)

Calc. FPP —— (0.65 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P No Noticed? No **BLM Sec Ord** No **WIPP** No Noticed? No **SALADO** T: 1,450 B: ~3475 **CLIFF HOUSE** N/A

Fresh Water: Max Depth: 150' Base of Og FW Formation Ogallala Wells? 1 within mile Analysis? (Y) HydrologicAffirmStatement Yes

Disposal Fluid: Formation Source(s) Well: San Andres water + Bl+Tu+Dr production water On Lease (X) Only from Operator ____ or Commercial ____

Injection Rate: 750 Ave BWPD 1000 max **Disposal Interval:** Protectable Waters? No **CAPITAN REEF:** in No thru No outside of Yes

H/C Potential: Producing Interval? [water flooding] — Formerly Producing? ____ Method: E Log /Mudlog/DST/Depleted/Other —

AOR Wells: 1/2-M Radius Map? Yes Well List? Yes Total No. Wells Penetrating Interval: 36

Penetrating Wells: No. Active Wells 34 Num Repairs? 0 on which well(s)? [Wells constructed for 11 WF & production] Diagrams? N

Penetrating Wells: No. P&A Wells 2 Num Repairs? 0 on which well(s)? 23 Diagrams? Y

NOTICE: Newspaper Date 04/09/13 Mineral Owner Leaseholder Surface Owner Eliz Taylor et al N. Date 4/15/2013

RULE 26.7(A): Identified Tracts? ✓ Affected Persons: Lease holder / Apache & ConocoPhillips Date 04/10/2013

Permit Conditions: None

Issues: